



Automated Measurement of Bycaught Halibut from Realtime Video



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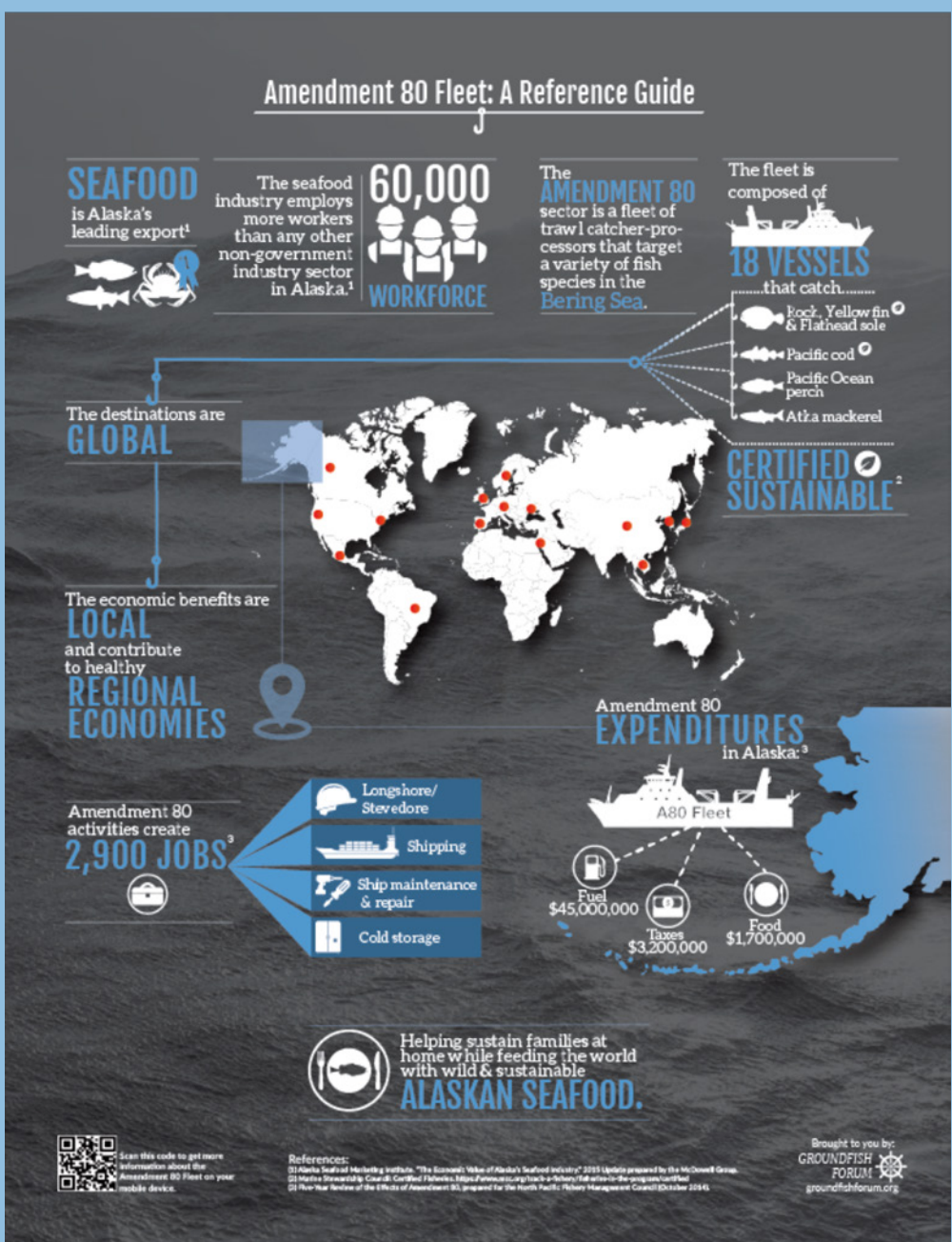
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Reducing Bycaught Mortality

Reducing halibut mortality in groundfish fisheries benefits halibut fishermen and improves access to groundfish.

Regulations require the Amendment 80 fleet to discard all halibut.

Offshore Trawl Fleet



- Annual Groundfish Catch ~ 350,000 mt
- Annual Halibut Bycatch ~ 2,000 mt

Current Halibut Accounting

Observers sample halibut on removal from live tanks below deck. This monitoring increases mortality by delaying return of halibut to the water.

Deck Sorting

Under an Exempted Fishing Permit (EFP), participating vessels are allowed to return halibut to the water immediately after their removal from the net on deck.



Hand-measurement:

- Time-consuming
- Costly
- Undersamples: The EFP requires 1 in 5 fish be measured
- Handling injures fish
- Increased mortality

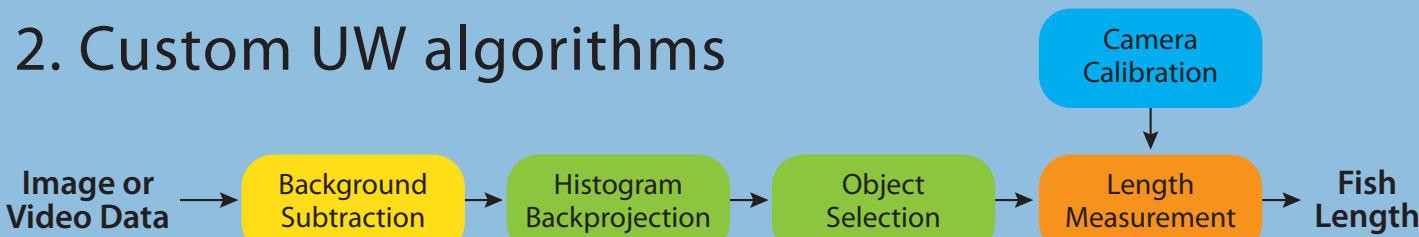


Our Solution: Bring Modern Technology and Algorithms to Bear

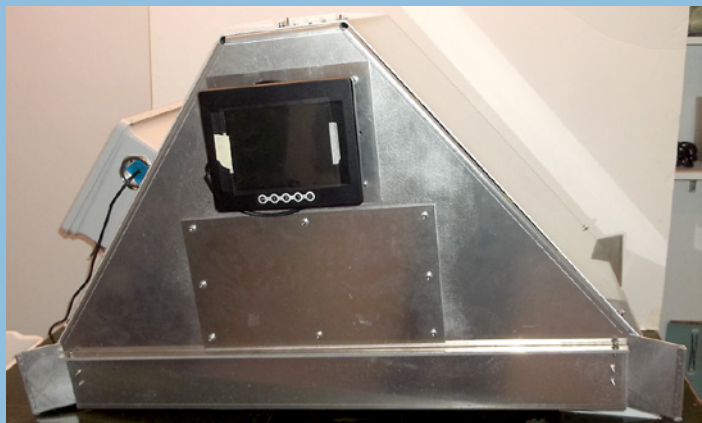
1. Rugged, inexpensive video web cam



2. Custom UW algorithms



3. Simple housing with external monitor



Our System Currently Deployed on Factory Trawler *Seafreeze America*

Features:

- Enhances monitoring during deck sorting
- Measures every fish
- **Decreases mortality**
- Multiple frames/fish: Robust to movement
- Weight estimate from length: $W = 9.205 \times 10^{-6} \times L^{3.2}$ (Clark 1991)
- All video timestamped and recorded for post-priori analysis/truthing

